

**REMARKS**

Subsequent to entry of the foregoing amendments, claims 1-3 and 5-41 are presently pending. Claims 1, 2, 12-20, 22-29 and 39 all remain withdrawn. Claims 3-11, 21 and 30-38 were again examined, all of which stand finally rejected. Claim 3 is hereby amended, claim 4 is cancelled, and new claim 41 is added.

Claim 3 is hereby amended to limit the conjugated diene based elastic polymer to one having a weight-average molecular weight in a range of from 300,000 to 700,000, as well as to limit the content of a vinyl linkage to a range of from 40 to 65%. Support for these amendments is found in the instant specification at least at page 13, line 20 through page 14, line 5, and page 18, line 25 through page 19, line 7.

The styrene-butadiene copolymers and modified copolymers of new dependent claim 41 are supported at least by original claim 7, and the molecular weight is supported at least by the aforementioned disclosure with respect to claim 3.

The present invention, as recited in claim 3, includes, *inter alia*, the following constitutional elements (a), (b) and (c) in a pneumatic tire:

- (a) at least one of rubber members constituted with a bead filler and in a side reinforcing layer;
- (b) content of a vinyl linkage of 40-65% in conjugated diene units; and
- (c) a weight-average molecular weight (Mw) in a range of 300,000-700,000.

An object of the present invention is described at page 1, lines 1-5 of the specification.

EP 985,554 ("EP '554") discloses a polybutadiene rubber which is a polydiene rubber linked with metal belonging to the Periodic Table IVa group consisting of tin, lead, germanium and silicon. Nowhere does EP '554 teach or suggest at least element (b) above.

As discussed in more detail below, none of the cited art, taken alone or in combination, teaches or fairly suggests the combination of elements (a), (b) and (c) in the instant claims.

Corvasce (U.S. Patent No. 6,202,726) discloses a tire containing an insert rubber composition comprising ultra-high molecular weight polyethylene and a starch/plasticizer composite. Corvasce clearly fails to teach or suggest at least element (c) above. Corvasce describes, with respect to the elastomer for use in the insert, examples of cis-1,4-polyisoprene, cis-1,4-polybutadiene, styrene-butadiene copolymer, high vinyl polybutadiene containing from 35-90% vinyl 1,2-groups and isoprene/butadiene copolymers are included (see col. 6, lines 5-9).

However, Corvasce's Examples use 100% of only the natural rubber (high cis-structure). It is clear from the reference that the insert having a high modulus and rigidity is obtained by compounding (a) a particulate polyethylene (UHMWPE) having an ultra-high molecular weight (4.5 - 8 million) and (b) a particulate starch/plasticizer composite, and that cis-1,4-polybutadiene and high vinyl polybutadiene containing from 35-90% vinyl 1,2-groups are equally described. Therefore, it is impossible from Corvasce's disclosure to judge the effect of the high vinyl polybutadiene containing from 35-90% vinyl 1,2-groups.

Contrast this with the Comparative Examples in the instant specification. Comparative Examples 1-4, 7, 9, 12, 14, 15, 18, 19, 22 and 23 use 20 weight parts of a natural rubber and 80 weight parts of cis-1,4-polybutadiene rubber (BR01), and Comparative Examples 8, 13, 17, 20 and 24 use 50 weight parts of a natural rubber and 50 weight parts of cis-1,4-polybutadiene rubber (BR01). Each Comparative Example fails to attain the effect of the present invention because of the use of the natural rubber and, due to the lack of the use of a conjugated diene based elastic polymer having a weight-average molecular weight in a range of 300,000-700,000 and a content of a vinyl linkage of 40-65% by weight in conjugated diene units.

The instant specification describes the effect of element (b) (vinyl linkage of 40-65%) from page 13, line 20 to page 14, line 5, as follows:

“In the conjugated diene elastic polymer (a) of the rubber component (1), it is preferable that the content of vinyl linkages in the conjugated diene units is 25% or more. When the content of vinyl linkages in the conjugated diene units is smaller than 25%, the effect of suppressing the decrease in the modulus due to elevation of the temperature tends to decrease since the decrease in the modulus due to scission of the sulfur crosslinking at a high temperature of 150°C or higher is predominant. The decrease in the modulus due to the elevation of the temperature can be sufficiently suppressed when the content of vinyl bonds is 25% or larger.

From the same standpoint, it is more preferable that the content of vinyl bonds is 30% or larger, still more preferably 35% or larger and the most preferably 40% or larger. From the standpoint of surely obtaining elasticity of the polymer, it is preferable that the content of vinyl linkages is 65% or smaller."

Furthermore, element (c) (Mw from 300,000 to 700,000) is described at page 18, line 25 to page 19, line 7, as follows:

"It is preferable that the conjugated diene based polymer in rubber composition (r2) and (r3) has a weight-average molecular weight (Mw) in the range of 200,000 to 900,000. When the molecular weight is smaller, tensile properties and rolling resistance of a vulcanized rubber composition tend to deteriorate. When the molecular weight is larger, processability of an unvulcanized rubber composition tends to deteriorate. The properties of a rubber composition can be made excellent when Mw is kept within the above range. From the same standpoint, it is more preferable that Mw is in the range of 300,000 to 800,000 and the most preferably in the range of 300,000 to 700,000."

The ability of the present invention to suppress the decrease in the elastic modulus at an extremely elevated temperature, or to increase the elastic modulus at an extremely elevated temperature although the elastic modulus at low temperatures is small, which are features required for a side reinforcing layer and/or bead filler, can be accomplished, for the first time, by the use of the conjugated diene base elastic polymers imparted with elements (b) and (c) above.

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In contrast, Corvasce and EP '554, taken alone or in combination, neither teach nor suggest the combination of elements in the present invention.

In view of the preceding amendments and remarks, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby earnestly solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephonic interview, he is kindly requested to contact the undersigned attorney at the local telephone number listed below.

The USPTO is directed and authorized to charge all required fees (except the Issue/Publication Fees) to our Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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